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(71) Applicant: **I.M.C. ELETTRONICA S.r.l.**
Via Bramante, 36/38
I-20154 Milano (IT)

(72) Inventor: **Narduzzo, Valerio**
Via Matteotti 32
I-20020 Arese (Milano) (IT)
Inventor: **Lorini, Walter**
Via Braccio da Montone 3
I-20154 Milano (IT)

(74) Representative: **Modiano, Guido, Dr.-Ing. et al**
Modiano & Associati S.r.l.
Via Meravigli, 16
I-20123 Milano (IT)

(54) System for the acquisition of scorings related to sports performances, particularly for sports with one or more referees.

(57) A system for the acquisition of scorings related to sports performances, particularly for sports with one or more referees, including means (1,2,20) for recording the data related to the scoring of the sports performances. The recording means (1,2,20) are given to the referees and are suitable to accumulate data related to the scoring of the sports

performances of the athletes or horses taking part in a sports activity. The recording means (1,2,20) are also suitable to transmit the data to receiver means (3,32) which are associated with local processing and control means (4) suitable to process the data according to the criteria set by the rules of the sports activity in progress.

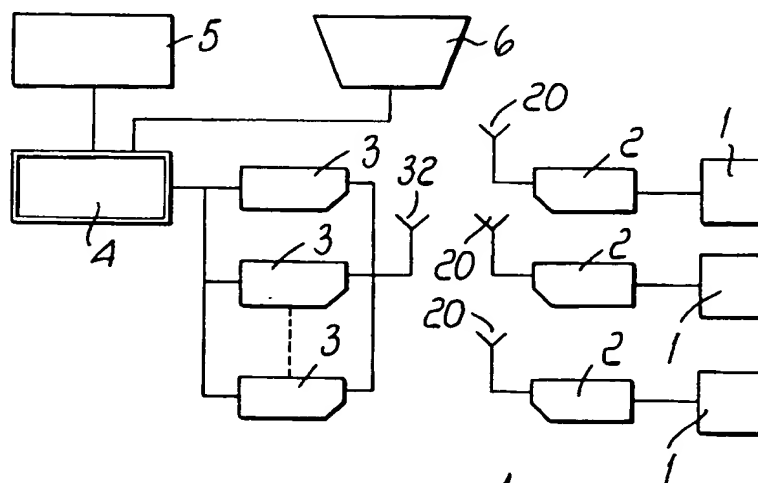


Fig. 1

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The present invention relates to a system for the acquisition of scorings of sports performances, particularly for sports with one or more referees.

The system according to the present invention is particularly applicable to sports involving more than one referee, such as the martial arts, karate, kung fu, wu-shu, gymnastics, figure skating, boxing, equestrian sports, etcetera.

It is known that in the above mentioned sports the performances of the athletes are currently rated by using paper notes or moving disk-like signals on which the individual referees mark their scoring. At the end of each competition or round, these notes are collected by a person and delivered to the jury or to the chief referee for the various calculations and the final scoring.

These calculations normally require eliminating the highest and lowest scorings, penalties, etcetera, in order to give a final average scoring.

These scoring methods of course have drawbacks, since the individual referees, during the competition, must either memorize the various scorings and/or marks given to the individual athletes, which may be more than one, or must note these scores or marks on notes, and this can entail some distraction of the referee.

Furthermore, in order to write the score on the notes the referees must either sit at a desk or, if they must be mobile, they must write the score while standing.

Collecting the notes from the individual referees and subsequent calculation of course entail a waste of time which is now highly undesirable in large sports competitions.

Furthermore, in sports where this is allowed, the spectators and the individual athletes are unable to see the scoring assigned by the referees in real time, that is to say while the sports performance is still in progress, or at the end of the various rounds.

Various systems that use a personal computer (PC) for each ring have been provided to obviate these problems, with limited results from the operational point of view since it is necessary to know how to use personal computers and the software related to the type of game.

Furthermore, the use of a personal computer for each ring entails considerable costs, and in any case the information related to the scorings of the referees are sent to the PC by means of notes or long electric cables that invade the playing field and prevent the athletes from moving rapidly.

A principal aim of the present invention is to eliminate or reduce the drawbacks of known scoring systems, providing a system for the acquisition of scorings related to sports performances, particularly for sports with one or more referees, that is capable of acquiring the scorings assigned by the

referees in a more efficient and comfortable manner, from the operational point of view, than known scoring systems.

Within the scope of this aim, an object of the present invention is to provide a system for the acquisition of scorings related to sports performances which is simple to use and does not require the assistance of specialized operators.

Another object of the present invention is to provide a system for the acquisition of scorings related to sports performances which is capable of providing and/or displaying the data related to the scorings of the sports performances in real time or in the shortest possible time.

Another object of the present invention is to provide a system that is highly reliable, relatively easy to manufacture, and at competitive costs.

This aim, these objects, and others which will become apparent hereinafter are achieved by a system for the acquisition of scorings related to sports performances, particularly for sports with one or more referees, characterized in that it comprises one or more means for recording the data related to the scoring of the sports performances, given to at least one referee, said recording means being suitable to accumulate data related to the scoring of the sports performance of at least one athlete in a sports activity in progress and to transmit said data to receiver means which are associated with local processing and control means, said local processing and control means being suitable to process said data according to the criteria set by the rules of said sports activity in progress.

The characteristics and advantages of the present invention will become apparent from the description of a preferred but not exclusive embodiment, illustrated only by way of non-limitative example in the accompanying drawings, wherein:

figure 1 is a block diagram of the system according to the present invention;

figure 2 is a block diagram of the means for recording scorings of the system according to the present invention;

figure 3 is a block diagram of the local processing and control means of the system according to the present invention;

figure 4 is a block diagram of the connection of multiple local processing and control means to a central processing and control unit.

With reference to the above figures, the reference numeral 100 designates the system according to the present invention. The system 100 comprises multiple scoring recording means. Each one of the recording means, given to the referees, comprises an accumulation unit 1 and transmission means which are suitable to transmit by radio the data from said accumulation units 1.

The transmission means of each one of the recording means comprise a radio transmitter 2 which is associated with a transmitter antenna 20.

The recording means and the corresponding transmission means are shown in greater detail in figure 2, where the accumulation unit 1 is shown in dashed lines. The accumulation unit substantially comprises one or two buttons 11 for individually increasing the scoring. If there are two athletes to whom a scoring must be given, then there are two buttons 11, one for each hand of the referee. The accumulation unit 1 is furthermore provided with a numeric or alphanumeric keypad 10 for entering other data related to the scoring of the sports activity or to the sports activity itself.

The keypad 10 and the buttons 11 are associated with a display 12 that is suitable to show the referee the current scoring or other data related to the sports activity in progress.

The accumulation unit 1 furthermore comprises a controller 13 which is provided with memory means (not shown) in which the program for selecting the type of sport and/or game is stored.

The controller 13 is furthermore provided with interfacing means (not shown) for connection to the transmission means, and particularly to the radio transmitter 2.

The recording means are advantageously provided as a portable (pocket) device, having a small weight and limited size, so that referees can carry and use said means comfortably.

Figure 3 illustrates in greater detail the local processing and control means and the corresponding receiver means. The receiver means substantially comprise a receiver antenna 32 which is connected to a radio receiver 3. The receiver means can be constituted by a single antenna and a single radio receiver with multiple decoding capabilities or, as shown, it is possible to have individual receiver means assigned to each one of the recording means.

The receiver means are connected to the local processing and control means 4, which gather information from the receivers 3 and are suitable to process said information as required by the rules of the sport for which said local processing and control means 4 have been preset.

With reference to figure 3, the local processing and control means 4 are provided with a local memory 40 for accumulating data from the receivers 3; each one complies with a different code. The memory 40 is connected to a microcomputer 41 which is suitable to process the data contained in the memory 40 depending on the rules of the sport for which the microcomputer has been preset. The setup of the microcomputer 41 and the processing of the data are performed by means of a program which is contained in the memory 40. The func-

tions related to the desired type of game or sport are stored and appropriately recalled in the memory 40.

The processing and control means furthermore comprise a serial interface 44 for connection to a central processing and control unit 6, as shown in figure 4. Said processing and control unit 6 is suitable to perform additional desired processing, prepare placing lists, create archives, etcetera.

An electronic chronometer 43 is also connected to the microcomputer, together with a keypad 42 by means of which it is possible to perform, through the microcomputer 41, functions related to the ongoing sports activity, such as:

- setting the desired sport or game;
- allowing the jury to modify the verdict of the referees;
- controlling the chronometer 43;
- allowing to load a number of athletes in the memory 40, dividing them by specialty and category;
- allowing to search for the competitor that follows the one currently on the board;
- deleting all the athletes enrolled in a certain category or type of game;
- connecting, by means of the serial interface, to the central processing and control unit 6.

The local processing and control means are furthermore provided with a display 5 of their own (figure 1) which has such dimensions that it is visible even from a distance, so that the athletes can read the scoring achieved and the time count (if required) generated by the electronic chronometer 43.

The operation of the system according to the present invention is as follows.

The processing and control means 4 are set, by means of the keypad 43, according to the desired game or sport. The functions related to the selected sport are loaded by the microcomputer 41 into the local memory 40.

The recording means are distributed to the referees who, by using the buttons 11 and the keypad 10, give a scoring to the athletes. The buttons 11 are held in each of the referee's hands so that he can increase the score for each athlete. This is particularly advantageous in sports in which two athletes compete against each other (contact sports, martial arts, boxing).

The penalties and other information related to the performance of the athletes can be entered by means of the keypad 10. Furthermore, before using the recording means the referees select the type of game or sport by means of the keypad 10 and the controller 13.

The referees who have the recording means can see the increase in the points on the display 12.

The controller 13, by means of its interface, sends the data related to the accumulated score to the transmitter 2 of the transmission means. The transmitter 2 transmits the data related to the score accumulated, at the frequency allowed by the applicable statutory provisions and by means of the transmitter antenna 20, to the receiver antenna 32 of the receiver means.

The receivers 3 receive the data from the antenna 32 and then load said data into the memory 40. The data loading order is determined by the microcomputer 41, which polls the receivers 3 according to their individual code.

The data related to the score are processed by the microcomputer 41 depending on the rules of the sport for which the microcomputer has been preset. The processed data is stored in the memory 40 and displayed on the display 5 to report the data to the spectators and to the athlete.

The processed data can be sent to the central processing and control unit 6, which creates placing lists and archives and performs additional calculations.

The processing and control means 4 can be transferred to another location, such as a temporary register, before making their contents official by means of a printout or the like.

The invention thus conceived is susceptible of numerous modifications and variations, all of which are within the scope of the inventive concept.

For example, the processing and control means can be mutually connected to exchange data.

The connection to the central processing and control unit can furthermore be performed by means of a radio link.

All the details may furthermore be replaced with other technically equivalent ones.

In practice, the materials employed, as well as the shapes and dimensions, may be any according to the requirements without thereby abandoning the scope of the protection of the appended claims.

Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

Claims

1. System for the acquisition of scorings related to sports performances, particularly for sports with one or more referees, characterized in that it comprises one or more means (1,2,20) for recording the data related to the scoring of

the sports performances, given to at least one referee, said recording means (1,2,20) being suitable to accumulate data related to the scoring of the sports performance of at least one athlete in a sports activity in progress and to transmit said data to receiver means (3,32) which are associated with local processing and control means (4), said local processing and control means (4) being suitable to process said data according to the criteria set by the rules of said sports activity in progress.

2. System according to claim 1, characterized in that said recording means comprise transmitter means (2,20) which are suitable to transmit said data to said receiver means (3,32) by means of radio signals.

3. System according to one or more of the preceding claims, characterized in that said transmitter means comprise a radio transmitter (2) and a transmitter antenna (20).

4. System according to one or more of the preceding claims, characterized in that said receiver means comprise at least one radio receiver (3) and a receiver antenna (32).

5. System according to one or more of the preceding claims, characterized in that said recording means comprise an accumulation unit (1) which is suitable to accumulate said data related to sports performances.

6. System according to one or more of the preceding claims, characterized in that said accumulation unit (1) comprises at least one button (11) for increasing the score related to the sports performance of said at least one athlete.

7. System according to one or more of the preceding claims, characterized in that said accumulation unit (1) comprises a keypad (10) for entering information related to the sports performance of said at least one athlete.

8. System according to one or more of the preceding claims, characterized in that said accumulation unit (1) comprises a display (12) which is suitable to show to said at least one referee said information related to the sports performances and to the sports activity in progress.

9. System according to one or more of the preceding claims, characterized in that said accumulation unit (1) comprises a controller (13) which is suitable to select the type of sports

activity for which a scoring must be given.

10. System according to one or more of the preceding claims, characterized in that said controller (13) comprises an interface for connection to the transmitter means (2,20). 5
11. System according to one or more of the preceding claims, characterized in that said processing and control means (4) comprise a memory (40) for accumulating said data received by said at least one receiver (3). 10
12. System according to one or more of the preceding claims, characterized in that said processing and control means (4) comprise a microcomputer (41) which is suitable to process said data related to the sports performances according to the rules of said sport in progress. 15
20
13. System according to one or more of the preceding claims, characterized in that said microcomputer (41) is suitable to poll said at least one receiver (3) by means of an individual code assigned to each said at least one receiver (3). 25
14. System according to one or more of the preceding claims, characterized in that said memory (40) comprises the processing functions related to at least one sport. 30
15. System according to one or more of the preceding claims, characterized in that said processing and control means (4) comprise an interface (44) for connection to a central processing and control unit (6). 35
16. System according to one or more of the preceding claims, characterized in that said central processing and control unit (6) is suitable to prepare placing lists and/or create archives. 40
17. System according to one or more of the preceding claims, characterized in that said processing and control means (4) comprise an electronic chronometer (43) which is suitable to provide a time count. 45
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18. System according to one or more of the preceding claims, characterized in that said processing and control means (4) comprise a display (5) whose dimensions make it visible to the spectators and to said at least one athlete. 55
19. System according to one or more of the preceding claims, characterized in that said con-

trol and processing means (4) comprise a keypad (42) by means of which it is possible to perform at least one of the following functions: setting the desired sport or game; allowing the jury to modify the verdict of the referees; controlling said electronic chronometer; loading a number of athletes into said memory, dividing them by specialty and category; searching for the competitor that follows the one on the board; deleting all the athletes enrolled in a given category or type of game; connecting, by means of said interface, to said central processing and control unit.

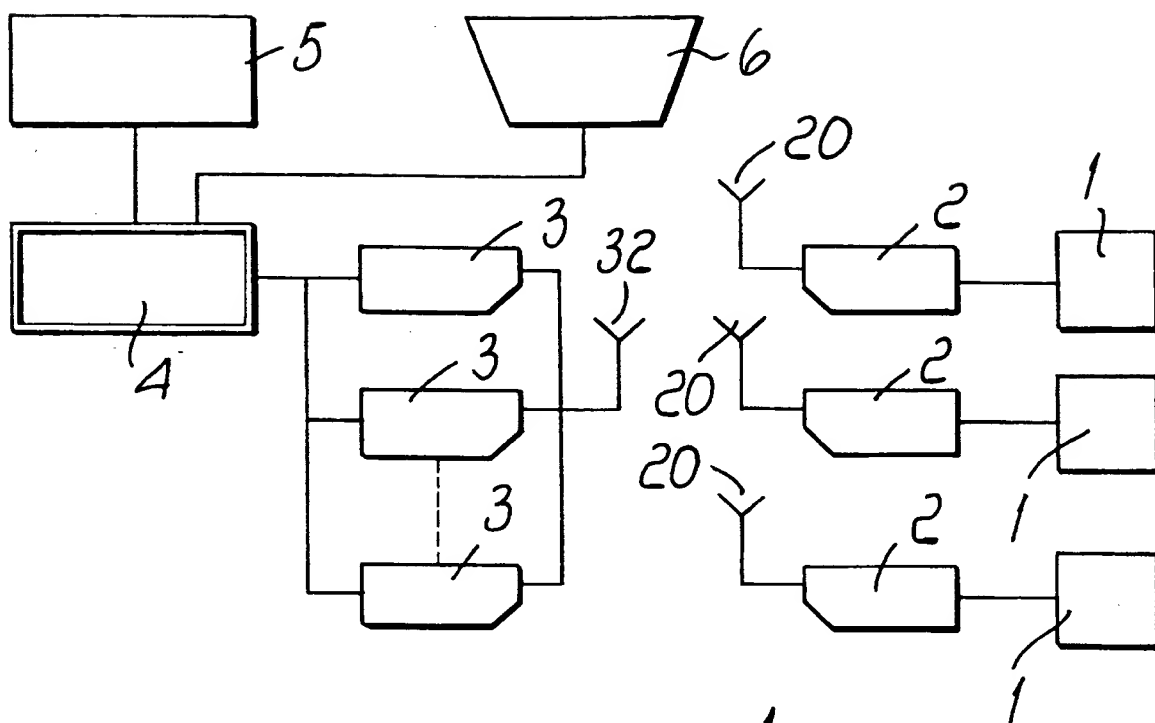


Fig. 1

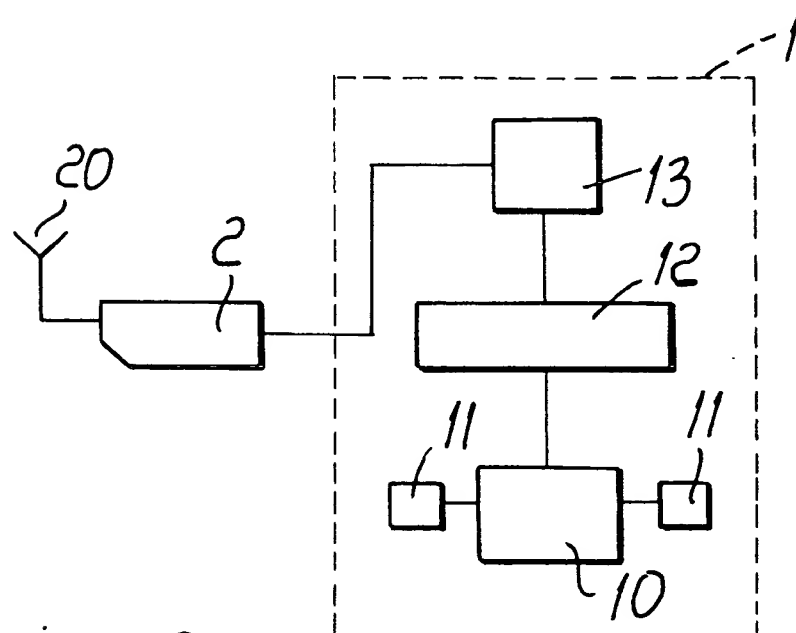


Fig. 2

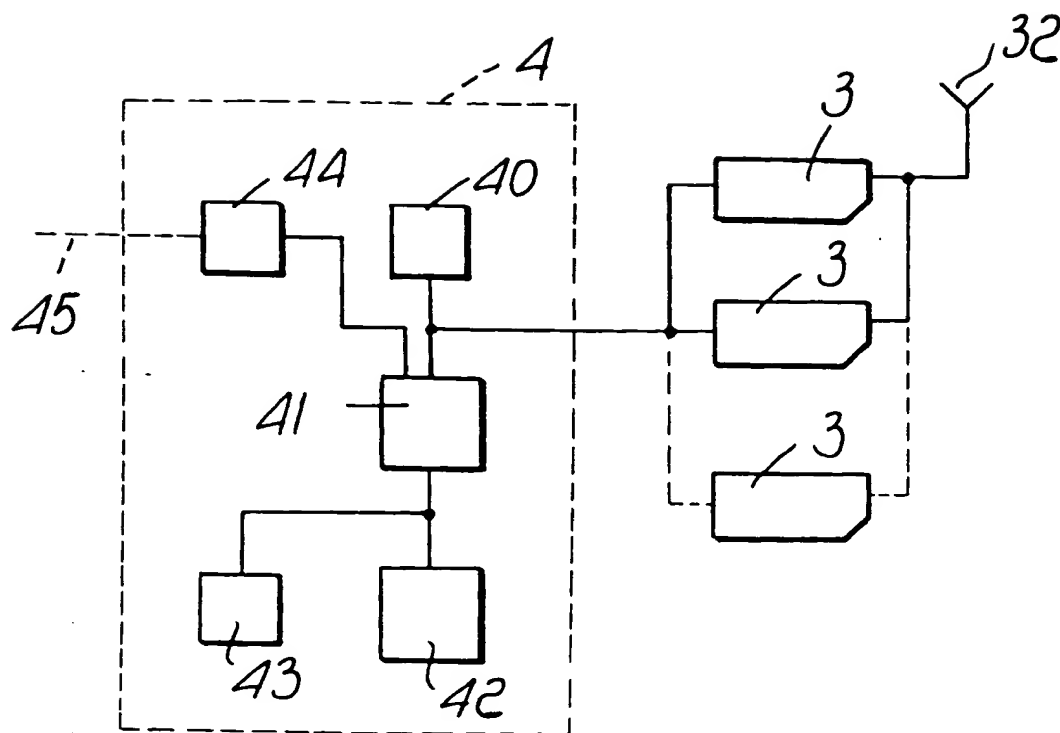


Fig. 3

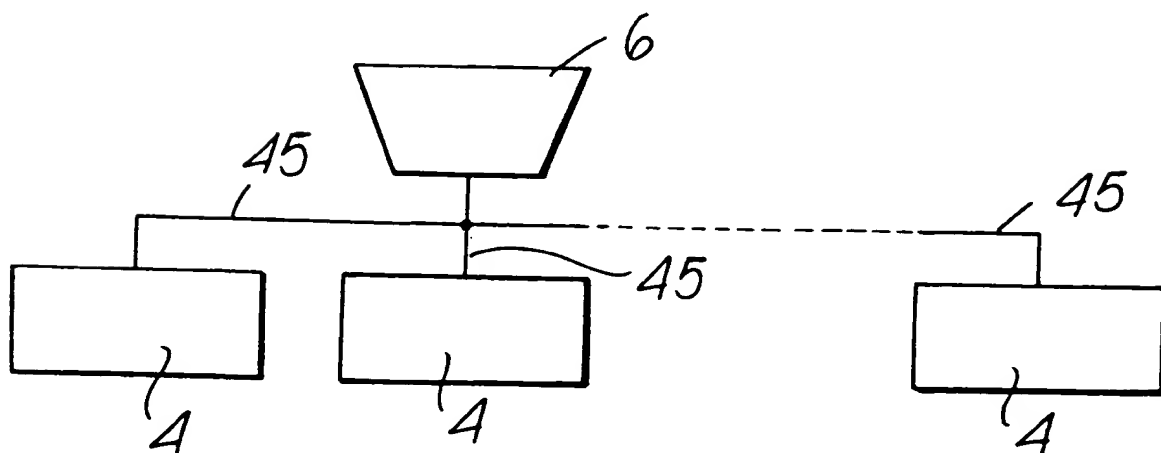


Fig. 4



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EUROPEAN SEARCH REPORT

Application Number
EP 95 10 4072

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	US-A-5 027 102 (SWEENEY) * column 3, line 23 - column 7, line 62; claim 1; figures 1-4 * ---	1-8, 11-14, 17-19	A63B71/06
X	US-A-5 283 733 (COLLEY) * the whole document * ---	1-8, 11-16, 18,19	
X	WO-A-94 05380 (GARCIA ET AL.) * the whole document * ---	1-8, 11-16, 18,19	
X	FR-A-2 679 676 (BAYARD ET AL.) * page 2, line 15 - page 9, line 3; figures 1-3 * ---	1-7, 9-12, 14-16, 18,19	TECHNICAL FIELDS SEARCHED (Int.Cl.6)
X	PATENT ABSTRACTS OF JAPAN vol. 15 no. 193 (C-0832) ,17 May 1991 & JP-A-03 051067 (PFU LTD) 5 March 1991, * abstract * ---	1-6,8, 11-14	A63B
X	US-A-3 959 640 (SYRIA) * the whole document * ---	1,5-8, 11,18,19 9,12-14	
X	US-A-4 910 677 (REMEDI0 ET AL.) * the whole document * -----	1,5-8, 11,12, 14-16,19 2-4,13	
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 26 July 1995	Examiner Williams, M
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			